

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Hirokazu SO et al.

Art Unit : 2186

Appl. No. : 10/596,155

Examiner : C. D. Birkhimer
(U.S. National Stage of PCT/JP04/17767)

I.A. Filed : November 30, 2004

Conf. No. : 2850

For : INFORMATION RECORDING MEDIUM DATA PROCESSING
APPARATUS AND DATA RECORDING METHOD

SUBMISSION UNDER 37 C.F.R. § 1.114 &
INTERVIEW SUMMARY

Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window, Mail Stop RCE
Randolph Building
401 Dulany Street
Alexandria VA 22314

Sir:

In response to the Official Action of March 18, 2010, in which a three-month shortened statutory period for response was set to expire on June 18, 2010, the present Response being submitted concurrent with a Request for Continued Examination, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection set forth in the Official Action, in view of the herein-contained remarks.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all previous versions and listings of claims in the present application.

Listings of Claims:

1. (Currently Amended) A method of recording data to a free area of a recording area of an information recording medium, the information recording medium having the recording area for storing data which is managed by a file system, wherein the recording area of the information recording medium is managed in units of blocks, and each block includes at least two clusters as units for storing data for the file system,

the method of recording data recording method comprises:

searching the blocks for a valid block, the valid block having at least a predetermined threshold number of unused clusters;

determining the valid block from the searched blocks;

writing the data in the determined valid block prior to writing the data in the searched blocks having less than the predetermined threshold number of unused clusters; and

acquiring information about the predetermined threshold number from the information recording medium, the information acquired from the information recording medium indicating information for determining the predetermined threshold number of

clusters necessary to write the data at least at a predetermined minimum speed, the information being acquired from the information recording medium before searching the blocks for the valid block and before writing the data in the determined valid block.

2. (Previously Presented) The recording method according to claim 1, wherein the data are written in unused clusters in the valid block.

3. (Previously Presented) The recording method according to claim 2, further comprising:

counting the unused clusters contained in each block in the recording area;

determining the valid block on the basis of the counting result;

generating and holding a valid free area list which is list information related to the valid block; and

searching for the valid block by referring to the valid free area list at data recording process.

4. (Cancelled)

5. (Previously Presented) The recording method according to claim 1, wherein the predetermined threshold number is a value of at least one-half of the number of clusters included in each block.

6. (Currently Amended) A data processing apparatus for writing or reading data to or from an information recording medium, wherein

a recording area of the information recording medium is managed in units of blocks, each block includes at least two clusters, and the clusters are units for storing data for a file system,

the data processing apparatus comprises:

an I/O processor that processes input and output of information for the information recording medium;

a file system controller that manages data stored in the information recording medium, as a file;

a data processor that controls writing and reading of data to and from the information recording medium; and

a valid free area manager that manages, by units of blocks, information for the blocks containing at least a predetermined threshold number of unused clusters in an area of the information recording medium,

when necessary to record data to a new free area, the data processor, as a control, searches for a valid block from the managed blocks with reference to the information held in the valid free area manager, and writes data to the searched valid block prior to writing data to another one of the managed blocks, and

information about the predetermined threshold number is acquired from the information recording medium, the information acquired from the information recording medium indicates information for determining the predetermined threshold number of clusters necessary for writing the data at least at a predetermined minimum speed, the

information being acquired from the information recording medium before the data processor searches for the valid block and writes the data to the searched valid block.

7. (Previously Presented) The data processing apparatus of claim 6, wherein the valid free area manager holds a valid free area list which is list information related to the valid block which is one of the blocks including at least the predetermined threshold number of unused clusters.

8. (Cancelled)

9. (Previously Presented) The data processing apparatus of claim 6, wherein the predetermined threshold number is a value of at least one-half of the number of clusters included in each block.

10-13. (Cancelled)

14. (Currently Amended) The recording method according to claim 1, wherein the predetermined minimum speed is [[the]] a speed necessary for real-time recording of the data.

15. (Currently Amended) The data processing apparatus of claim 6, wherein the predetermined minimum speed is [[the]] a speed necessary for real-time recording of the data.

REMARKS

Initially, Applicants express appreciation to the Examiner for the detailed Official Action provided.

Additionally, Applicants express appreciation for the courtesies extended by the Examiner to Applicants' representative James Bonnamy during the telephone interview of June 9, 2010. During the telephone interview, the outstanding rejection of the claims under 35 U.S.C. § 103 was discussed. Specifically, the distinctions between the present application and the applied references were discussed. In this regard, it was discussed and agreed that the present application acquires information from the information recording medium necessary for writing the data at least at a predetermined minimum speed prior to writing the data in the information recording medium. In contrast, the applied references merely appear to monitor the write speed of data to an information recording medium as the data is written to the information recording medium. In other words, it was discussed and agreed that, based on the Examiner's present understanding, the applied references fail to disclose that information necessary for writing data at a predetermined minimum speed is acquired from an information recording medium before data is written to the information recording medium. Accordingly, it was recommended that the claims of the present application be amended to explicitly recite such a feature.

During the telephone interview, the Examiner indicated that, if the claims are amended to incorporate the above-mentioned distinguishing feature, such an amendment would require further consideration and/or search. Thus, the Examiner recommended that such an amendment be submitted concurrent with a Request for Continued Examination (RCE). In this regard, the Examiner confirmed that, if such an amendment

is submitted concurrent with a RCE, a first final action would not be issued in response thereto.

Upon entry of the present paper, claims 1 and 6 will have been amended to incorporate the above-mentioned distinguishing feature as discussed during the above-mentioned telephone interview, and claims 14 and 15 will have each been amended to correct an informality. The herein-contained amendments should not be considered an acquiescence in the propriety of the outstanding rejection. Rather, the claims have been amended to advance prosecution to allowance. Furthermore, it is submitted that the herein-contained amendments do not add prohibited new matter. Specifically, the amendments to claims 1 and 6 are submitted to be supported at least by Figure 6 of the present application. Thus, upon entry of the present paper, claims 1-3, 5-7, 9, and 14-15 are pending in the present application with claims 1 and 6 being in independent form.

Applicants address the pending rejection provided within the outstanding Official Action below and respectfully request reconsideration and withdrawal thereof together with an indication of the allowability of claims 1-3, 5-7, 9, and 14-15 (*i.e.*, all pending claims) in the next Official communication. Such action is respectfully requested and is now believed to be appropriate for at least the reasons provided below.

35 U.S.C. § 103 Claim Rejections

In the outstanding Official Action, claims 1-3, 5-7, and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter "AAPA") in view of U.S. Pat. No. 5,535,369 to Wells et al. (hereinafter "WELLS"), in view of U.S. Pat. No. 5,287,500 to Stoppani, Jr. (hereinafter "STOPPANI"), and in view of U.S. Appl. Pub. No. 2002/0103969 to Koizumi et al. (hereinafter "KOIZUMI").

Initially, Applicants again note that, upon entry of the present paper and without acquiescing in the propriety of the above-captioned rejection, independent claims 1 and 6 will have been amended (and claims 14 and 15 will have been amended to correct an informality). In this regard, Applicants traverse the rejection.

Amended independent claims 1 and 6 recite, respectively, a method of recording data and a data processing apparatus. Each independent claim generally recites that a recording area of an information recording medium is managed in units of blocks, with each block including at least two clusters as units for storing data. The blocks are searched for a valid block that has at least a predetermined threshold number of unused clusters, and data is written in the valid block before being written in the searched blocks having less than the predetermined threshold number of unused clusters.

According to each independent claim, information about the predetermined threshold number of unused clusters is acquired from the information recording medium. The information indicates information for determining the predetermined threshold number of clusters necessary for writing data at least at a predetermined minimum speed. Furthermore, as generally set forth by each amended independent claim, the information is acquired from the information recording medium before searching the blocks for the valid block and before writing the data in the determined valid block.

Applicants respectfully submit that, as discussed and agreed during the telephone interview of June 9, 2010, AAPA, WELLS, STOPPANI, and KOIZUMI, alone or in combination, fail to disclose or render obvious such features as recited in the claimed combinations of amended independent claims 1 and 6. Specifically, it is submitted that the combination of AAPA, WELLS, STOPPANI, KOIZUMI fails to disclose or render

obvious at least the feature of acquiring information about the predetermined threshold number of clusters necessary to write data at least at a predetermined minimum speed before searching for a valid block and before writing the data in the valid block.

In the outstanding Official Action, on page 5, it is acknowledged that AAPA, WELLS, and STOPPANI fail to disclose the feature of acquiring information from the information recording medium for determining a predetermined threshold number of clusters necessary for writing data at least at a predetermined minimum speed. Thus, since these references fail to even disclose that such information is acquired from the information recording medium, it is respectfully submitted that AAPA, WELLS, and STOPPANI cannot be reasonably interpreted to disclose or render obvious the feature of the present application, as recited in the claimed combinations of independent claims 1 and 6, of acquiring the information for determining the predetermined threshold number from the information recording medium before searching for a valid block and before writing data in the determined valid block.

On page 5 of the outstanding Official Action, it is asserted that KOIZUME discloses that information is acquired from an information recording medium for determining a predetermined threshold number of clusters necessary for writing data at least at a predetermined minimum speed. In this regard, KOIZUMI discloses a network storage system 309 for storing data (KOIZUMI, Figure 3 and ¶[0028]). According to KOIZUMI, a service processor 325 monitors the performance of the network storage system and is connected to a performance monitoring PC 323 (KOIZUMI, Figure 3 and ¶[0030]). The service processor 325 sets and monitors parameters of the network storage system, such as data transfer speed, etc. (KOIZUMI, ¶[0012]). If the data transfer speed

drops below the predetermined speed, data is migrated to increase the data transfer speed (KOIZUME, ¶[0013]).

With respect to KOIZUME, Applicants initially note that KOIZUME does not even appear to disclose data clusters. Thus, it is submitted that KOIZUME cannot be reasonably interpreted to disclose the feature of the present application of acquiring information, from an information recording medium, for determining a predetermined threshold number of clusters necessary to write data at least at a predetermined minimum speed.

Notwithstanding the above, KOIZUME merely appears to disclose that the service processor 325 monitors a data transfer speed while writing data to determine whether the data transfer speed drops below a predetermined speed. In this regard, even if the monitoring of the data transfer speed, as disclosed by KOIZUME, is interpreted to correspond to the feature of the present application of acquiring information from the information recording medium for determining the predetermined threshold number of clusters (to which interpretation Applicants do not acquiesce), KOIZUME discloses that the monitoring occurs during a data transfer. In other words, as discussed during the telephone interview of June 9, 2010, KOIZUME does not appear to disclose or render obvious that the information is acquired from the information recording medium before searching for a valid block and before writing data in the determined valid block, as recited by amended independent claims 1 and 6.

Accordingly, at least in view of the above, Applicants respectfully submit that AAPA, WELLS, STOPPANI, and KOIZUME, whether considered alone or together in any proper combination thereof, fail to render obvious the features of amended

independent claims 1 and 6 as recited in the claimed combinations. Thus, it is respectfully requested that the rejection of claims 1 and 6 as being rendered obvious thereby is withdrawn and that these claims be indicated to be allowable in the next Official communication.

With respect to the rejection of dependent claims 2-3, 5, 7, 9, and 14-15, Applicants submit that these claims are all directly or indirectly dependent from one of allowable independent claims 1 and 6, which are allowable for at least the reasons discussed *supra*. Thus, these claims are submitted to also be allowable for at least the reasons discussed *supra*. Furthermore, these claims recite additional features which further define the present invention over the references of record.

Therefore, at least in view of the above, Applicants respectfully submit that each and every pending claim of the present application (*i.e.*, claims 1-3, 5-7, 9, and 14-15) meets the requirements for patentability. Accordingly, the Examiner is respectfully requested to withdraw the 35 U.S.C. § 103 rejection and to indicate the allowance of each and every pending claim in the present application.

CONCLUSION

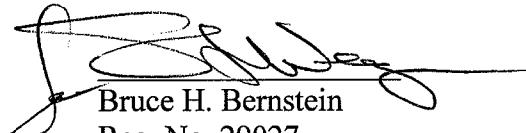
In view of the fact that none of the art of record, whether considered alone, or in any proper combination thereof, discloses or renders obvious the present invention as now defined by the pending claims, and in further view of the above amendments and remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and are believed to be appropriate.

Applicants note that this amendment is being made to advance prosecution of the application to allowance, and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

If there should be any questions concerning this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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